UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,965	10/01/2003	Wanshi Chen	4740-212	8121

24112 7590 08/24/2005

COATS & BENNETT, PLLC
P O BOX 5
RALEIGH, NC 27602

EXAMINER	
KARIKARI, KWASI	

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,965	CHEN ET AL.	
	Examiner	Art Unit	
	Kwasi Karikari	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on October 1st 2005 is in compliance with the provision of 37 CFR 1.97, has been considered by the Examiner, and made of record in the application file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,3,4,7,9,10,12,13,16,17,18,19,22 and 24 are rejected under U.S.C. 103(a) as being unpatentable over Rohani, (U.S. 5,999,522), (hereinafter Rohani) and further in view of Gilhousen et al., (U.S. 5,625,876), (hereinafter Gilhousen).

Regarding **claims 1 and 10,** Rohani discloses a method of improving reverse link communications at a Radio Base Station (RBS) (base station, see Fig. 1, item 100) providing a plurality of radio sectors (Fig. 2, items 210-260), the method comprising:

forcing always-softer reverse link handoff conditions at the RBS for mobile stations served by the RBS based on assigning one or more additional reverse links from remaining sectors of the RBS if a reverse link is assigned to a mobile station from a serving sector of the RBS (reverse link signal 215, 216 and 217 are assign to sectors

210,220 and 260 respectively, see col. 4, lines 1-20 and Fig. 2), but fails to teach that the reverse link signals from the assigned reverse links are combined to obtain a combined reverse link signal for the mobile station.

Gilhousen teaches that signals from sectors with common base station are combined within the base station in a handoff process at the base station (see col. 8, lines 35-42).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Gilhousen and Rohani for the benefit of achieving a system that combines reverse link signal to achieve improve signal performance.

Regarding **claims 3 and 12,** Rohani as modified by Gilhousen discloses the method of claims 1 and 10, further teaches the method further comprising assigning the one or more additional reverse links irrespective of whether the corresponding sectors are suitable for forward link assignments to the mobile station (power from reverse signal may be received at sectors other than the one which is in forward link communication with the mobile station, see col. 4, lines 11-20).

Regarding **claims 4 and 13,** Rohani as modified by Gilhousen discloses the method of claims 1 and 10, further teaches the method that further comprising assigning the one or more additional reverse links irrespective of whether the corresponding sectors are included in a current active set of the mobile station (sector 220 which is on the candidate list receives reverse link signal, see col. 4, lines 11-31).

Regarding **claim 7**, Rohani as modified by Gilhousen according to claim 1, fails to teach the method further comprising causing the mobile station to reduce a reverse

link transmit power in conjunction with implementing the always-softer handoff to account for improved reception quality of the combined reverse link signal.

Gilhousen further teaches that a power adjustment command for the mobile unit is created by the controller from the estimate signal strengths of each element 316A-316N, see col. 7, lines 60-65 and Fig. 2).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Gilhousen and Rohani's for the benefit of achieving a system that combines signals from sectors of common base station, and allowing the base station to make single power adjustment command for mobile unit power control.

Regarding **claims 9 and 16**, Rohani as modified by Gilhousen according to claims 1 and 10, further teaches the method further comprising increasing a finger search window used by RAKE receiver radio circuits at the RBS (base station receiver 298 measures all the reverse link signals received at various sectors and compare their relative signal strength, see col. 4, lines 36-41 and Fig. 2).

Regarding **claims 17,** Rohani discloses a method of improving reverse link communications at a Radio Base Station (RBS) having a plurality of radio sectors (base station, see Fig. 1, item 100), the method comprising:

selecting a first sector of the RBS as a serving sector for a mobile station (mobile station 290 communicate with sector 210 of the base station 100, col. 4,lines 6-11 and Fig. 1) and assigning forward and reverse links to the mobile station at the serving sector (forward link 211 and reverse link 215 are use to maintain two way communication, see col. 4,lines 6-11 and Fig. 2);

selectively forcing an always-softer reverse link handoff condition for the mobile station at the RBS by assigning one or more additional reverse links to the mobile station at one remaining sectors of the RBS (reverse link signal 215, 216 and 217 are assign to sectors 210,220 and 260 respectively, see col. 4, lines 1-20 and Fig. 2), but fails to teach combining the reverse link signals from the mobile station from the assigned reverse links to form a combined reverse link signal.

Gilhousen discloses that signals from sectors with common base station are combined within the base station in a handoff process at the base station (see col. 8, lines 35-42).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Gilhousen and Rohani for the benefit of achieving a system that combines reverse link signals to achieve improved signal performance.

Regarding **claim 18,** Rohani as modified by Gilhousen discloses the method of claim 17, but fails to teach the method further comprising transmitting the combined reverse link signal over a backhaul link to a supporting Base Station Controller (BSC).

Gilhousen teaches that the combined signal from the base station may be send to the communication system controller (see col. 10, lines 49-56).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Gilhousen and Rohani for the benefit of achieving a system that combines reverse link signals and send it to a communication controller, to achieve improved signal performance

Regarding **claim 19,** Rohani as modified by Gilhousen discloses the method of claim 17, further teaches that the method further comprising making forward link assignments independently of assigning the one or more additional reverse links to the mobile station (power from reverse signal may be received at sectors other than the one which is in forward link communication with the mobile station, see col. 4, lines 11-20).

Regarding **claim 22**, Rohani as modified by Gilhousen according to claim 17, fails to teach the method further comprising causing the mobile station to reduce a reverse link transmit power if the always-softer reverse link handoff condition is forced for the mobile station.

Gilhousen further teaches that power adjustment for the mobile unit is created by the controller from the estimate signal strengths of each sector element 316A-316N, see col. 7, lines 60-65 and Fig. 2).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Gilhousen and Rohani for the benefit of achieving a system that combines signals from sectors of common base station, and allowing the base station to make single power adjustment command for mobile unit power control.

Regarding **claim 24**, Rohani as modified by Gilhousen according to claim 17, further teaches the method further comprise increasing a finger search window used by RAKE receiver radio circuits at the RBS for receiving reverse link signals from the mobile station to account for potentially greater reverse link signal dispersion at the RBS (base station receiver 298 measures all the reverse link signals

received at various sectors and compare their relative signal strength, see col. 4, lines 36-41 and Fig. 2).

3. **Claims 2 and 11 are rejected under U.S.C. 103(a) as being unpatentable over Rohani, in view of Gilhousen and further in view of CZAJA et al., (20020037726 A1), (hereinafter CZAJA)**

Regarding **claims 2 and 11**, Rohani as modified by Gilhousen according to claims 1 and 10, fails to teach a combined reverse link signal for the mobile station comprises performing maximum ratio combining of the reverse link signals.

CZAJA discloses that the received signals are combined in the maximum ratio fashion (Page 4, line 0051).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of CZAJA and the combination of Gilhousen and Rohani for the benefit of achieving a system that uses maximum combining ratio scheme to improve reception sensitivity at the mobile station.

4. **Claims 5,6,8,14,15,20,21 and 23 are rejected under U.S.C. 103(a) as being unpatentable over Rohani, in view of Gilhousen and further in view of Tiedemann JR. et al., (20020154610 A1), (hereinafter Tiedemann).**

Regarding **claims 5 and 14**, Rohani as modified by Gilhousen according to claims 1 and 10, fails to teach the method comprises: determining whether any reverse link supplemental channel (R-SCH) is assigned to the mobile station; and forcing the always-softer reverse link handoff condition if a R-SCH is assigned to the mobile station

and not forcing the always-softer reverse link handoff condition if no R-SCH is assigned to the mobile station.

Tiedemann discloses that mobile station request for reverse supplementary channel (R-SCH) from the base station when the mobile station has packet data to be sent, and the reverse supplemental channel (R-SCH) for transmission is possible after the request has been granted to the mobile station (see Page 6, line 0068).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Tiedemann and the combination of Gilhousen and Rohani for the benefit of achieving a system that is capable of using R-SCH to transmit packet data to the base station during a communication.

Regarding **claims 6 and 15**, Rohani as modified by Gilhousen according to claims 5 and 14, fails to teach forcing the reverse link fundamental channel (R-FCH) assigned to the mobile station.

Tiedemann discloses that the mobile station could use reverse fundamental channel (R-FCH) to request reverse supplemental (R-SCH) from the base station (see Page 6, line 0068).

Regarding **claim 8**, Rohani as modified by Gilhousen according to claim 7, fails to teach the method comprises causing the mobile station to reduce a transmit gain of a reverse link supplemental channel signal transmitted by the mobile station to the RBS on the assigned reverse links.

Tiedemann discloses various ways to control the reverse supplementary channel transmit power (see Page 9, lines 0097-0099).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Tiedemann and the combination of Gilhousen and Rohani for the benefit of achieving a system that is capable of controlling the R-SCH transmit power without terminating communication session between base station and the mobile station.

Regarding **claim 20**, Rohani as modified by Gilhousen according to claim 17, fails to teach the method comprises; implementing always-softer reverse link handoff for the mobile station if any reverse link supplemental channels (R-SCHs) are being used for the mobile station, and not implementing always-softer reverse link handoff for the mobile station if no R-SCHs are being used for the mobile station.

Tiedemann teaches that mobile station requests for reverse supplementary channel (R-SCH) from the base station when the mobile station has packet data has to be sent, and the reverse supplemental channel (R-SCH) for transmission is possible after the request has been granted to the mobile station (see Page 6, line 0068).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Tiedemann and the combination of Gilhousen and Rohani for the benefit of achieving a system that is capable of using R-SCH to transmit packet data to the base station during a communication.

Regarding **claim 21**, Rohani as modified by Gilhousen according to claim 20, fails to teach forcing the always-softer reverse link handoff condition for any reverse link fundamental channel (R-FCH) associated with the mobile station.

Tiedemann discloses that the mobile station could use reverse fundamental channel (R-FCH) to request reverse supplemental (R-SCH) from the base station (see Page 6, line 0068).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Tiedemann and the combination of Gilhousen and Rohani for the benefit of achieving a system that is capable of using the reverse fundamental channel (R-FCH) to send information to the base station.

Regarding **claim 23**, Rohani as modified by Gilhousen according to claim 7, fails to teach the method comprises causing the mobile station to reduce a transmit gain of a reverse link supplemental channel signal transmitted by the mobile station to the RBS on the assigned reverse links.

Tiedemann discloses various ways to control the reverse supplementary channel transmit power (see Page 9, lines 0097-0099).

It would therefore have been obvious to one of the ordinary skill in the art to combine the teaching of Tiedemann and the combination of Gilhousen and Rohani for the benefit of achieving a system that is capable of reducing R-SCH transmit power without terminating communication session between base station and the mobile.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newson et al., (6,320,898) teaches a CDMA pseudo-smart antenna selection.

Padovani (6,411,799) teaches a method and apparatus for providing ternary power control in communication system.

Damnjanovic et al., (2003050084 A1) teaches a reverse link power control in 1XEV-DV systems.

Jain et al., (20050004970 A1) teaches a system and method for a time-scalable priority-based scheduler.

Kim et al., (20030133415 A1) teaches system and method of controlling assignment of call on a reverse supplemental channel in a mobile communication.

Wei et al., (20030072294 A1) teaches a method and apparatus for managing imbalance in a communication system.

Cave et al., (20050070287 A1) teaches a method for soft/softer handover for wireless communication system.

Chen et al., (20040203991 A1) teaches power control of serving and non-serving base stations.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwasi Karikari whose telephone number is 571-272-8566. The examiner can normally be reached on M-F (8 am - 4pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571- 272 5905. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kwasi Karikari
Patent Examiner.

CHARLES APPIAH
PRIMARY EXAMINER